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TITLE: RECORDING AND REPRODUCING COMPOSITE HEAD FOR
VERTICAL
MAGNETIC RECORDING

PUBN-DATE: April 8, 1994

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ABSTRACT:

PURPOSE: To provide the composite head suitable for a high recording density and to obtain reproduction efficiency of a high density by facilitating the growth of films having smooth surfaces without disturbing the periodic structure of an MR element consisting of multilayered films having a high magnetic resistance change ratio at the time of executing reproducing with a vertical magnetic recording medium.

CONSTITUTION: A main magnetic pole magnetic film 2 is formed on one side of

a substrate and an MR film 3 is formed on the rear side of this main magnetic pole magnetic film 2 via this substrate. The substrate surface is smoothed by making combination use of surface cleaning methods, such as etching by ion beams, polishing and heat-treating. There is a coil 6 formed of annular multiple layers molded by a resin, etc., 5 between the main magnetic pole film 2 and an auxiliary magnetic pole film 4. The MR film is magnetically coupled via the insulating film 7 to the auxiliary magnetic pole film 8 and the main magnetic pole film 2. The insulating film 7 is formed to $\geq 10 \mu\text{m}$ thickness by a method, such as sputtering. The auxiliary magnetic pole film 8 is further protected by an insulating protective film 9 consisting of SiO_2 , Al_2O_3 , etc.

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